

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Amended) A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism, belonging to the species *Mortierella sp. alpina* and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

(2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

Claims 2-5 (Cancelled)

Claim 6 (Amended) The process according to claim 1 3, wherein the microorganism belonging to subgenus ~~Mortierella~~ is Mortierella and the genus ~~Mortierella~~, Mortierella is strain SAM 2197 (FERM BP-6261).

Claim 7 (Previously Presented) The process for producing arachidonic acid or lipid containing arachidonic acid according to claim 1, wherein the carbon source concentration at the start of culturing is at least 8% by weight.

Claims 8-32 (Cancelled)

Claim 33 (Amended) A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism, belonging to the species *Mortierella* sp. ~~alpina~~ and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

(2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during

the culturing, and at least about 2% nitrogen source at the start of culturing for about 5 to 10 days with agitation and an aeration rate of at least about 1 vvm.

Claim 34 (Amended) A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism of strain *Mortierella sp.* SAM 2197 and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

(2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

Claim 35 (New) A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism of the genus *Mortierella*, subgenus *Mortierella* and having resistance to a carbon source of high concentration, in a medium having a

carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

(2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

Claim 36 (New) The process according to claim 35, wherein the microorganism is selected from section *Alpina*, section *Hygrophila*, section *Mortierella*, section *Schmuckeri*, section *Simplex*, section *Spinosa* and section *Stylospora*.

Claim 37 (New) The process for producing arachidonic acid or lipid containing arachidonic acid according to claim 35, wherein the carbon source concentration at the start of culturing is at least 8% by weight.